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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,282	09/24/2001	Hiroshi Kondo	862.C2390	4768
5514	7590	03/19/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			MUTSCHLER, BRIAN L	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	

1753

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/960,282	KONDO ET AL.	
	Examiner	Art Unit	
	Brian L. Mutschler	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Comments

1. Applicant's cancellation of claims 1-9 in the response filed February 2, 2004, is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) in view of Weinberg (U.S. Pat. No. 6,262,558).

Regarding claims 10 and 17, Simburger et al. disclose a solar battery comprising a solar cell array disposed on one side of a substrate and a power converter disposed on the opposite side of the substrate (col. 5, lines 10-15). The module is connected using a simple two wire bus (col. 3, lines 19-23). Simburger et al. further disclose connecting a plurality of solar cell power modules to form a solar cell array (col. 5, lines 22-29). Since the device of Simburger et al. uses a two wire bus and a plurality of devices can be used to form an array, the device would inherently have an input connector for collecting power from outside the device and an output connector for

outputting the power. The two-wire bus also makes the device capable of being connected in parallel to another solar battery device.

The device of Simburger et al. differs from the instant invention because Simburger et al. do not disclose the use of a detector or a controller, as recited in claims 10-12, and a DC-DC converter, as recited in claim 16.

Weinberg discloses a solar battery having a plurality of solar cells. The device has a current detector **211** to detect the current from the solar cells (col. 10, line 51). The device further comprises a plurality of switches and a switch controller for controlling the switches to maintain the output of the solar cell array (col. 3, lines 31-41). The switches disconnect portions of the solar array to match the solar array power to the load (col. 3, line 45-48). Weinberg also discloses a DC-DC converter to convert the produced current into a current that is usable by the load (col. 2, line 23).

Regarding claims 10-12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use a current detector and a controller as taught by Weinberg because a current detector and controller would allow the device to match the power of the solar battery with the power requirements of the load.

Regarding claim 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use a DC-DC converter as taught by Weinberg because a DC-DC converter allows the power generated by the solar cells to be converted into a more usable current for the load.

4. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as applied above to claims 10-12, 16 and 17, and further in view of Uchihashi et al. (U.S. Pat. No. 5,951,785).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose the use of a plug and receptacle connection means for the input and output connectors, as recited in claim 13, and an inverter for converting DC power to AC, as recited in claim 15.

Uchihashi et al. disclose a solar cell module having an integrated DC-AC inverter and plug **14** and receptacle connection means for connecting the modules (col. 1, lines 26-29; col. 6, lines 5-9).

Regarding claim 13, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use a plug and receptacle connection means as taught by Uchihashi et al. because a plug and receptacle allows for easy installation of the solar cell modules.

Regarding claim 15, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use an DC-AC inverter as taught by Uchihashi et al.

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because a DC-AC inverter would convert the DC power generated by the solar cells to AC power, a form of power used for many applications.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as applied above to claims 10-12, 16 and 17, and further in view of Cowan (U.S. Pat. No. 5,569,998).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose the use of an indicator to indicate a control state of the power converter, as recited in claim 14.

Cowan discloses a solar battery device comprising a DC-DC converter and an indicator **37** that provides an indication of the status of the power generator (col. 5, lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to use an indicator as taught by Cowan because an indicator would allow the user to quickly ascertain the operating condition of the device.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and Weinberg (U.S. Pat. No. 6,262,558), as

applied above to claims 10-12, 16 and 17, and further in view of Harris (U.S. Pat. No. 4,409,537).

Simburger et al. and Weinberg describe a device having the limitations recited in claims 10-12, 16 and 17 of the instant invention, as described above in section 3.

The device of Simburger et al. and Weinberg differs from the instant invention because they do not disclose connecting a plurality of the devices in a single-phase three-wire system.

Harris discloses a connection method for a plurality of solar cells wherein the solar cells are connected to a three-wire system (col. 1, line 59 to col. 2, line 15). The three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and Weinberg to connect a plurality of devices using a three-wire system as taught by Harris because a three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

7. Claims 10-12, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) in view of EP 0 807 980 A2, herein referred to as EP '980.

Regarding claims 10 and 17, Simburger et al. disclose a solar battery comprising a solar cell array disposed on one side of a substrate and a power converter disposed on the opposite side of the substrate (col. 5, lines 10-15). The module is connected using a simple two wire bus (col. 3, lines 19-23). Simburger et al. further disclose connecting a plurality of solar cell power modules to form a solar cell array (col. 5, lines 22-29). Since the device of Simburger et al. uses a two wire bus and a plurality of devices can be used to form an array, the device would inherently have an input connector for collecting power from outside the device and an output connector for outputting the power. The two-wire bus also makes the device capable of being connected in parallel to another solar battery device.

The device of Simburger et al. differs from the instant invention because Simburger et al. do not disclose the use of a detector or a controller, as recited in claims 10-12, and an inverter, as recited in claim 15.

EP '980 discloses a solar cell device comprising a solar cell module **601**, a detector **602** for detecting a voltage and a current of the solar cell module, a controller **603**, and an inverter **604** (p. 7, lines 30-36). The controller **603** controls the inverter **604** "depending on an output detected by the detector" (p. 7, lines 32-33). The inverter **604** converts the power generated by the solar cell module into a form useable by the load circuit **605**.

Regarding claims 10-12, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger

et al. to use a detector and controller as taught by EP '980 because the detector and controller provides a greater degree of control over the device.

Regarding claim 15, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Simburger et al. to use an inverter as taught by EP '980 because the inverter converts the energy generated by the solar cells into a useable form for the load.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 10-12, 15 and 17, and further in view of Uchihashi et al. (U.S. Pat. No. 5,951,785).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose the use of a plug and receptacle connection means for the input and output connectors, as recited in claim 13.

Uchihashi et al. disclose a solar cell module having an integrated DC-AC inverter and plug **14** and receptacle connection means for connecting the modules (col. 1, lines 26-29; col. 6, lines 5-9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP

'980 to use a plug and receptacle connection means as taught by Uchihashi et al. because a plug and receptacle allows for easy installation of the solar cell modules.

9. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 10-12, 15 and 17, and further in view of Cowan (U.S. Pat. No. 5,569,998).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose the use of an indicator to indicate a control state of the power converter, as recited in claim 14.

Cowan discloses a solar battery device comprising a DC-DC converter and an indicator **37** that provides an indication of the status of the power generator (col. 5, lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to use an indicator as taught by Cowan because an indicator would allow the user to quickly ascertain the operating condition of the device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to use a DC-DC converter as taught by Cowan because the type of converter used

in to convert the power generated by the solar cells depends on the load being powered, certain loads require AC while other loads require DC.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simburger et al. (U.S. Pat. No. 6,300,158) and EP 0 807 980 A2, as applied above to claims 10-12, 15 and 17, and further in view of Harris (U.S. Pat. No. 4,409,537).

Simburger et al. and EP '980 describe a device having the limitations recited in claims 10-12, 15 and 17 of the instant invention, as described above in section 7.

The device of Simburger et al. and EP '980 differs from the instant invention because they do not disclose connecting a plurality of the devices in a single-phase three-wire system.

Harris discloses a connection method for a plurality of solar cells wherein the solar cells are connected to a three-wire system (col. 1, line 59 to col. 2, line 15). The three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device described by Simburger et al. and EP '980 to connect a plurality of devices using a three-wire system as taught by Harris because a three-wire system "prevents a fault in one group of primary cells from inhibiting the normal operation of any other group in the power transmission system" (col. 2, lines 11-13).

Response to Arguments

11. Applicant's arguments filed February 2, 2004, have been fully considered but they are not persuasive.

12. Regarding the rejection of claims 10-18 over the combination of Simburger and Shiotsuka, Applicant has argued that "the combination of Simburger and Shiotsuka would not be able to achieve the desired result" because "Shiotsuka's detector would still detect the current that comes directly from the solar cell module which has not yet been converted" (see page 7 of Applicant's response). This argument is not persuasive because the reference of Shiotsuka has been relied upon for its teachings of a detector and controller. The detector of Shiotsuka is structured to detect the output of the device and the controller is structured to control the inverter based on an output of the detector. One skilled in the art would place the detector where the detector is capable of detecting the output of the device and the controller where the controller is capable of controlling the inverter. Thus, the instant claims are not structurally distinguished over the combination of Simburger and Shiotsuka because both detectors detect the output of the respective device and both controllers control the converters of the respective device.

13. Regarding the rejection of claims 10-18 over the combination of Simburger and Weinberg, Applicant has argued that "Weinberg is also not seen to teach the power converter controller of the present invention and, in addition, is not seen to teach a detector structured to detect a collected power which is output to outside the device"

(see page 7 of Applicant's response). Applicant further states, "Weinberg is seen to teach a detector which merely detects current that is maintained in the device and the portion that goes outside of the device to the use load 89 is undetected" (see pages 7-8 of Applicant's response). This argument is not responsive because the full teaching of Weinberg does teach the use of a control and detection system that is structured to detect and control the output of the device, as required by the limitations of the instant claims. The detector and controller of Weinberg detects the output of the device and uses a clamping circuit to limit the output (see figure 8 and col. 9, lines 21-37). Therefore, the detector and controller of Weinberg are structured to be capable of performing the desired function.

14. Applicant also argues, "To control the power converter based on the maximum rated current value of the output connector could be counter-productive to the apparent goal of running the Weinberg system at the maximum power point" (see page 8 of Applicant's response). This argument is not persuasive because it is not seen how the proposed modification or combination of the prior art would change the principal of operation. Both Simburger and Weinberg teach the use of solar cell devices for use on satellites. Both references also discuss the desired constant production of power and recognize the effects of eclipses. The control system of Weinberg is designed as a response to control inconsistencies when entering and leaving eclipses. Therefore, the teachings of Simburger and Weinberg are consistent with one another.

15. Applicant further argues, "Rejections based on 'intended use' are only permissible when such uses are specified in the preamble, and even then rejections do

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not always result" (see pages 8-9 of Applicant's response). This argument does not accurately reflect the guidelines set forth in the MPEP. While MPEP § 2111.02 does provide guidelines for limitations contained in the preamble, the relevant section in the MPEP regarding intended use within the body of the claim is found in MPEP § 2114, which holds that a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The instant claims merely recite "a detector, structured to detect a current value of the collected electric power" and "a power converter controller, structured to control operation of said power converter." The prior art of record teaches the use of detectors structured to detect the output of solar cell devices and controllers structured to control the controllers. Therefore, there does not appear to be any structural difference between the instant claims and the prior art of record.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

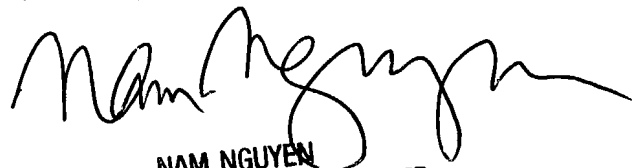
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571) 272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

blm
March 10, 2004


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